WHAT I CLAIM IS:

1. An insulin regulator construct, comprising:

   a) a glucose response element (GlRE) of a liver-pyruvate (L-PK) gene promoter; and

   b) an insulin-sensitive element of an insulin-like growth factor binding protein-1 (IGFBP-1) basal promoter.

2. The insulin regulator construct of Claim 1, wherein:

   said glucose response element comprises a hepatic nuclear factor-4 (HNF-4) binding site and a glucose responsive site.

3. The insulin regulator construct of Claim 2, further comprising:

   a plurality of said glucose response elements.

4. The insulin regulator construct of Claim 2, wherein:

   the sequence of said HNF-4 binding site and said glucose responsive site is in a native orientation.

5. The insulin regulator construct of Claim 2, wherein:

the sequence of said HNF-4 binding site and said glucose responsive site is reversed from a native orientation.

6. The insulin regulator construct of Claim 1, wherein:

said glucose response element is inserted upstream of said insulin-sensitive element in an insulin-like growth factor binding protein-1 (IGFBP-1) basal promoter.

7. The insulin regulator construct of Claim 1, wherein:

said glucose response element comprises a nucleotide sequence set forth in SEQ ID NO.: 1.

8. The insulin regulator construct of Claim 1, wherein:

said insulin-sensitive element comprises a nucleotide sequence set forth in SEQ ID NO.: 2.

9. An insulin regulator construct, comprising:

a nucleotide sequence set forth in one of SEQ ID NO.: 3, SEQ ID NO.: 4, SEQ ID NO.: 5, and SEQ ID NO.: 6.

10. The insulin regulator construct of Claim 1, which is not stimulated by exposure to lactate or fructose.

11. The insulin regulator construct of Claim 1, which is stimulated by exposure to glucose and inhibited by exposure to insulin.

12. A vector comprising the construct of Claim 1.

13. An adenoviral vector comprising the construct of Claim 1.

14. A transgene comprising the construct of Claim 1.

15. A pharmaceutical composition comprising the construct of Claim 1 and a pharmaceutically acceptable carrier or diluent.

16. A pharmaceutically acceptable derivative of the construct of Claim 1.

17. A method of treating or preventing diabetic conditions in a subject by administering an effective amount of the construct of Claim 1.

18. A method of regulating insulin production in a subject by administering an effective amount of the construct of Claim 1.

19. A method of modulating hyperglycemia, while avoiding severe hypoglycemia, in a subject by administering an effective amount of the construct of Claim 1.

20. A method of increasing fat catabolism in a subject by administering an effective amount of the construct of Claim 1.

21. A method of reducing protein catabolism in a subject by administering an effective amount of the construct of Claim 1.

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